"ON TO THE BAY"

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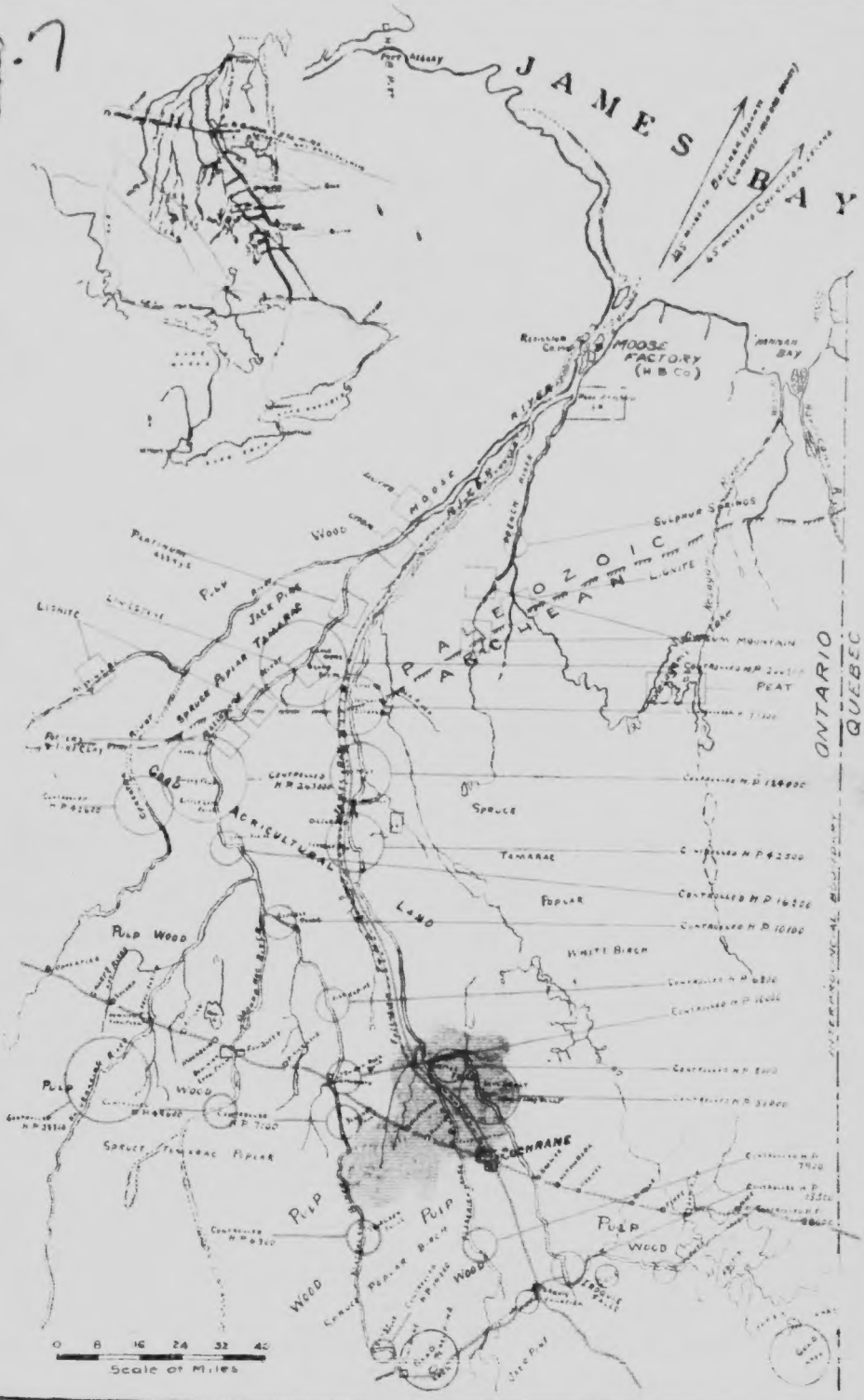


SOME OF THE RESOURCES AWAITING THE EXTENSION OF THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY FROM COCHRANE TO JAMES BAY.

1919

Notes on the Navigation of Hudson Bay

"Navigation in Hudson Bay and James Bay," says Sidney C. Ellis, 1911 Report, pages 33-35, "has been carried on more or less extensively since the year 1610, when the intrepid navigator, Henry Hudson, made his first trip into Hudson Bay. In the succeeding years several expeditions were sent up to follow up Hudson's discoveries and find a passage to the Western Ocean. These resulted in fairly accurate knowledge of the west side of Hudson Bay."

"In 1631 Captain James followed much the same course to the cape, which he named after the Queen, 'Henrietta Maria.' From this point he sailed southward along the west coast of the bay which bears his name, and after many times nearly meeting shipwreck on shoals, finally ran his ship aground on Charlton Island, where they passed the winter."

"So far as Hudson Bay itself is concerned, there is no question that its waters are safe for navigation for quite six months of the year, even for longer. As a matter of fact, the real difficulty lies not in the bay, but in the strait itself. With the object of attempting to demonstrate what may be expected in regard to the above period of navigation, several expeditions have at various times been despatched north in an endeavor to ascertain the true conditions prevailing in Hudson Strait."

"Hudson Strait has a length of 480 miles from east to west. It has a practicable channel at least 35 miles wide with from fifty to two hundred fathoms of water. Thus there is no danger from stranding on the [illegible]nd moreover, a number of safe harbors exist both on the [illegible]outh sides of these straits. In short, if situated in more so[illegible]latitudes, the route would be considered an ideal one for the navigator."

In 1903 and 1904, Mr. A. P. Low, commanding the C.G.S. *Arctic*, carefully investigated conditions affecting opening and closing dates for navigation, and the results of his work are summarized as follows:

"The period of safe navigation for ordinary iron ships through Hudson Straits and across Hudson Bay to Churchill may be taken to extend from the 20th of July to the 1st of November. This period might be extended without much risk by a week in the beginning of the season and perhaps by two weeks at the close."

The terminus at Moose Factory will be in latitude 51 deg. as compared with Fort Nelson, the terminus of the Hudson Bay Railway, which lies in latitude 57 deg. and is located approximately 420 miles further north than the proposed Temiskaming and Northern Ontario Railway terminus; at Moose Factory, James Bay, or in other words Moose Factory is about as far south of Fort Nelson as Toronto is south of Cochrane.

Extension of Temiskaming and Northern Ontario Railway from Cochrane to Tide Water, Moose Factory, James Bay

The Ontario Government Railway

The phenomenal development of Northern Ontario during the past fifteen years was set in motion on the tenth day of May, 1902, when the Honourable F. R. (now Justice) Latchford turned the first sod of the right-of-way of the Temiskaming and Northern Ontario Railway at North Bay.

This event marked the consummation of the long struggle of the Honourable F. R. Latchford and other influential men who for years previously had been urging the opening up and development of the north country. Some phrases used by the opponents to the scheme and which have often been quoted since, were: "Why build a road up there in that land of muskeg and stunted poplar?" "It will never pay," "It is unwise," and a lot of other similar arguments. The phenomenal development that has since taken place throughout the north country in the opening up of the richest gold and silver mines in the world, as well as other natural resources, no prophet of old could possibly have foretold.

The proposed extension of approximately one hundred and eighty-five miles from Cochrane to James Bay to connect up the system with a salt water port, would pass through country, the potentialities of which may, to a large extent, be measured by and determined upon the successful exploitation of the resources already tapped in the various districts lying between Cobalt and Cochrane.

The Honourable T. W. McGarry, speaking in the Legislature in 1918 on Public Ownership of Railways in Ontario, declared such to be a decided success, since the Temiskaming and Northern Ontario Railway is practically paying its way. "We have," said Mr. McGarry, "$21,000,000 invested in the Temiskaming and Northern Ontario Railway on capital account. Interest charges since 1906 have amounted to $7,911,520. From the Temiskaming and Northern Ontario Railway Commission we have received the sum of $6,961,000 including operating revenue of $4,838,245 and Dominion subsidy of $2,126,000, leaving a net charge to the Province in thirteen years of operation of $950,000.

The Pulpwood Industries

The Abitibi Power and Paper Company, Limited, is operating at Iroquois Falls, one of the largest pulp and paper mills in the Dominion of Canada, with a capitalization of $11,768,200.

The annual capacity of the mill is 62,000 tons news print paper, 21,000 tons surplus sulphite pulp and 22,500 tons surplus ground wood pulp. The capacity of water powers is 48,000 horse-power, of which 28,000 horse-power is developed and in operation; pulpwood lands comprise 1,000,000 acres, estimated to contain more than 5,000,000 cords pulp-making woods, in addition to which 15,000,000 are available in the vicinity of the mill; the value of the properties, as estimated by Mr. George F. Hardy, Consulting Engineer, of New York, is $15,200,000.

Since the beginning of operations this company has manufactured approximately 212,000 tons of paper, 80,000 tons groundwood pulp, 26,000 tons sulphite pulp. In addition to the many thousands of tons of miscellaneous supplies shipped in, the company has used over 200,000 tons of coal and 15,000 tons of sulphur in the manufacture of this immense output.

The Mattagami Pulp and Paper Company, Limited, Smooth Rock Falls, is operating along similar lines to the Abitibi plant, with mills located on the Mattagami River, thirty miles west of Cochrane, and a short distance north of the Canadian National Railway's main line, served by a spur. The plant has a designed capacity of 15,000 tons of sulphite pulp per annum.

This company has 125 square miles of freehold timber limits and holds under lease from the Ontario Government 840 square miles of leasehold timber limits, all of which are situate just above the company's plant on the Mattagami, Meskegon and Buskego Rivers in Northern Ontario.

In addition to these two operating plants another large pulpwood area surrounding Kapuskasing, 70 miles west of Cochrane, and comprising 1,700 square miles with approximately 7,000,000 cords of spruce timber, has been leased by the Ontario Government to the Spruce Falls Pulp & Paper Company.

With all these pulpwood limits adjacent to the railroads already under development, the completion of the T. & N. O. Railway to James Bay will open up another immense pulpwood area, and owing to the increasing size and number of rivers flowing into the Moose, down which the raw materials may be floated, larger pulp and paper plants will be made possible.

1. Meadow at Moose Factory.
2. Garden at Moose Factory.
4. Dairy Cattle at Moose Factory.
5. Logging Operations on James Bay.

Water Powers of the James Bay Slope

The Commission of Conservation of Canada has prepared exhaustive data on the available water powers of the several Provinces of the Dominion of Canada.

In speaking of the water powers of Ontario and more especially of those located on the James Bay Slope, the following notations are made:

"'The rivers in many respects are similar. In the lower regions they become wide, shallow and swift, after tumbling down over what has been termed by geologists the 'Archaean boundary,' where an altitude of approximately 250 feet is overcome in a distance of from five to fifteen miles by a series of falls and rapids, the principal falls on each river at this Archaean boundary are as follows:

On the Missanabi, at the end of Long Portage, at what is known as "Hell Gate," a fall and rapid of 110 feet.

On the Opazatika, Break Neck falls, a descent of 60 feet.

On the Mattagami at Long Portage, falls and rapids of 150 feet.

On the Abitibi, the Long Rapid between the mouth of Little Abitibi River and New Post, 160 feet, and a fall of 110 feet.'"

"'The large lakes at or near the head waters are fairly uniform in altitude, being approximately 1,000 feet above the sea level. They may be enumerated as follows:

Abitibi Lake on the Abitibi River.

Frederickhouse and Night Hawk Lake on Frederickhouse River.

Mattagami and Kenogamisi Lakes on the Mattagami River.

Pishkanganna, Matagaling and Rice Lakes on the Kakozhisk River.

Missanabi, Kapuskasing, Opazatika, Kabinakagami, Kenogami and Ogoki Lakes at or near the heads of the respective rivers of the same name.

Rainy Lake, Lake of the Woods, Lac Seul and Lake Jos., upon the upper waters of the Winnipeg, English, Albany Rivers.

"'The drainage basin within the limits of the Province of Ontario of those several rivers is approximately 100,000 square miles.'"

SUMMARY WATER POWERS ON THE JAMES BAY SLOPE.

	Controlled H.P.		Controlled H.P.
Albany River	44,600	Kapuskasing	28,800
Ogoki	172,000	Kakozlisk	49,600
Kenogami	36,500	Abitibi	348,500
Kabinakagami	62,300	Black	1,260
Missinabi	249,500	Frederickhouse	9,540
Opasatika	42,600		
Mattagami	621,700	Total	1,666,900

MOOSE FACTORY.

HAY MEADOW, SHIP SANDS.

The Fixation of Atmospheric Nitrogen

Perhaps the most important of all the good things in store for the inhabitants of Northern Ontario in connection with the hydro-electric development of the immense water-powers is the comparatively new industry, "The Fixation of Atmospheric Nitrogen."

This is a process of extracting nitrogen from the atmosphere for commercial uses. Hitherto the chief source of supply of nitrates both for the United States and Canada has been from Chili, but this source of supply is fast decreasing, and with it there is developing an increasing demand for nitrates in various forms.

The United States has taken hold of the situation with a firm hand and is at present constructing an immense plant at the Muscle Shoals, on the Tennessee River, in Northern Alabama, for the purpose of supplying hydro-electric power for manufacturing the several by-products of atmospheric nitrogen. The enormous extent of this development will be realized in part when it is remembered that a lake seventy miles long is being created, together with other immense water storage basins, the lower dam itself requiring the construction of a retaining wall built of concrete 100 feet high and a mile long.

The process of development consists in the breaking apart, so to speak, of the nitrogen from the oxygen by being brought into contact with calcium carbide in a retort at a fixed temperature, when there is formed cyanamid, or lime nitrogen.

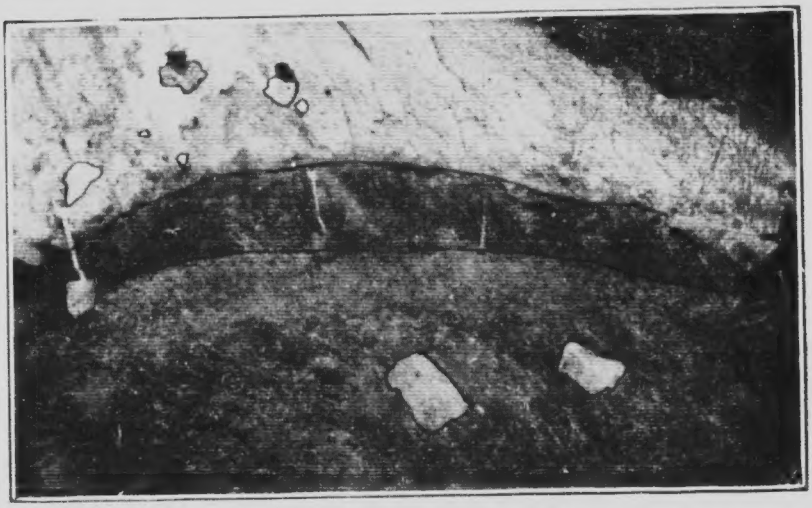
The fertilizer produced by this process contains nitrogen, phosphorus and potash, all three of which are of prime importance if the production of the country is to keep pace with the increased demands for foodstuffs; in other words, it is impossible to continually subtract from the soil year after year, and still have a sufficient balance to carry over, unless more of the required plant foods are annually returned to the soil.

The fixation of atmospheric nitrogen with coke, lime and phosphate rock in abundance will provide for Canada in unlimited quantities and at hitherto unrealized cheapness the antidote for the ills from which the Dominion, and especially the Prairie Provinces, are suffering due to over-production and under-fertilization of the areas placed under cultivation yearly.

The Province of Ontario has in the immense water-powers of the James Bay Slope the heritage sufficient, when hydro-electrically developed, to supply this great need by producing cyanamid and its component parts cheaply and in such vast quantities that the possibilities are little short of dazzling.

IRON ORE DEPOSIT, MATTAGAMI RIVER.

In speaking of the feasibility of navigating James Bay to Moose Factory, W. R. Maher, summing up (page 23, 1913 Report), states that the Hudson's Bay Company has made one hundred and forty voyages into James Bay, with the loss of only three vessels, one of these in Hudson Bay, one in James Bay, and one in the mouth of the Moose River.



LIGNITE FOLD CUT OFF BY GLACIATION.

Iron Ores of the Mattagami Basin

The iron ore deposits of the Mattagami River were discovered by Dr. Robert Bell and described by him, in the Bureau of Mines Report, 1914, page 238, as follows:

"This locality is remarkable for the occurrence of a large deposit of iron ore. Its position is on the north-west side of the river, at the foot of the rapids. It runs along the foot of the cliff for a distance of upwards of three hundred yards. The highest points rise about fifteen feet above the level of the river. The surface is mottled, reddish-yellow and brown, and has a rough spongy or "lumpy" appearance like that of a great mass of bog ore. At the surface and sometimes to a depth of several inches it is a compact brown hematite, occasionally in botryoidal crusts, with radiating columnar structure; but deeper down it is a dark gray compact, very finely crystalline spathic ore, apparently of a pure quality.

The deposit was also examined and reported on by Mr. J. M. Bell. Both these geologists appear to have seen only the deposits at the foot of the rapids, whereas deposits of equal size and possibly of equal richness occur at the head of the rapids, one mile and a half further upstream. These deposits occur on both banks of the river and extend across the bed of the river at both places. They stretch along the shore for about eleven hundred feet in each case. They reach in places fifteen to eighteen feet above the level of the river, but their full thickness cannot be estimated, as they extend below water level in almost every case. Nor could it be ascertained how far they extend inland from the banks of the river, but from the fact that the ore belt is eleven hundred feet wide and extends across the full width of the river, a distance of a quarter of a mile, the conclusion was reached that it will extend inland for a similar distance at least. This opinion can only be verified by boring or mining.

"When the limestone has been eroded or dissolved through to the underlying siderite, deposits of weathered limonite on top might be expected which would change with depth to siderite. It is possible that this siderite itself could easily become an ore. It is exceptionally high grade, as shown by the several tests and analysis which give 43.27 per cent. iron, and by simply calcining the siderite over a Bunsen burner the carbon-dioxide was driven off, giving a product which analyzed 63.74 per cent iron. In many parts of Europe spathic iron ores, of much lower grade than this are calcined, in some cases in open heaps, sometimes in continuous kilns, and sometimes in roasting furnaces using gaseous fuels. It is possible, therefore, that

with a high-grade siderite, plenty of local fuel, for example lignite or peat, or charcoal made from the birch forests of the north country, this siderite could be easily converted into a high-grade ore, thereby [illegible] the freight rates to such a degree as would allow of the long haul necessary to bring them to the smelters. Without wishing to be too optimistic, it would appear to the writer, that this is a phase [illegible] question worthy of some consideration."

The Belcher Islands Iron Ore Deposits

Situated in the northern portion of James Bay are a group of [illegible] known as the Belchers, and on these islands have been located [illegible] iron ore so vast in extent that the mind can scarcely grasp it.

[illegible] who have examined these properties tell us that there are at least 350,000,000 tons of ore available, and that there are approximately 300,000 tons already mined and ready to ship. The ore is all easy of access, being situated on tide water with deep harbors.

This immense ore deposit consists of two bodies. The first is approximately five miles long, and has an average width of thirty feet. It is hematite ore having a metallic iron content of 46.51 per cent., a phosphorus content of .026 per cent., and a sulphur content of .100 per cent. The second deposit is a flat lying body exposed on one side of a strip of land for a distance of three thousand feet. The exposure is about one and a half miles wide at the narrowest point. The average thickness of this ore body is about thirty feet. The metallic iron content is 52.32 per cent., the phosphorus content .027 per cent., and the sulphur content .069 per cent. These figures are taken from an analysis of the ore made by Thomas Hays & Sons, Toronto, and confirmed by Edward Riley & Harbord, of London, England.

The importance of this ore body to the future development of the Province of Ontario will be more fully realized when the following facts are considered: In 1917 Canada charged to her blast furnaces 2,176,000 tons of iron ore, 92,065 tons being of domestic origin.

In 1917 Canada imported from the United States iron and steel products (not including the value of the ores) amounting to $95,165,875. The average annual value of the iron and steel goods imported from the United States into Canada for the five-year period [illegible] June 30th, 1917, amounted to $81,909,572. What a vast advantage Canada has in her Inland Ocean, and especially the Province of Ontario, which, according to statistics, is now producing more than fifty per cent. of all the iron and steel goods manufactured in the Dominion. The development of this ore body will introduce British capital for the extension of Ontario's iron and steel industries.

Lignite in the Moose River Basin

Lignite was long ago reported to exist in the Moose River basin of Northern Ontario, and has been reported on almost every river of the James Bay watershed. Lignite or brown coal may be described as a 'half-way' stage in the change of carbonaceous matter between peat on the one hand and bituminous coal on the other. The lignite of the Mattagami River occurs at the east end of Big Bend, 100 miles upstream from Big Bend, or about eighty miles down stream from the railway. The outcrop cannot be seen except in the lowest water. It then shows two narrow seams dipping into the east bank at an angle of about 50 and striking W. 30 S. The upper seam is six feet thick at the thickest place lying below this are four feet of clay quite dark and lignite in places, followed by one foot of lignite.

Most of the lignite is laminated, showing stems, twigs, leaves and other characters, but buried in this looser material are many sections of the limbs and trunks of trees. By digging up some of the lignite a few of the larger of these trees were secured, the largest one measuring seventeen inches in diameter. This would represent a rather substantial tree before compression.

Scattered abundantly through the loose lignite are fragments of perfect charcoal which have been preserved as fragments of charred wood, as if a fire, probably starting from lightning, had passed over this portion of the area, leaving pieces of charred wood which are now scattered through the lignite at this point.

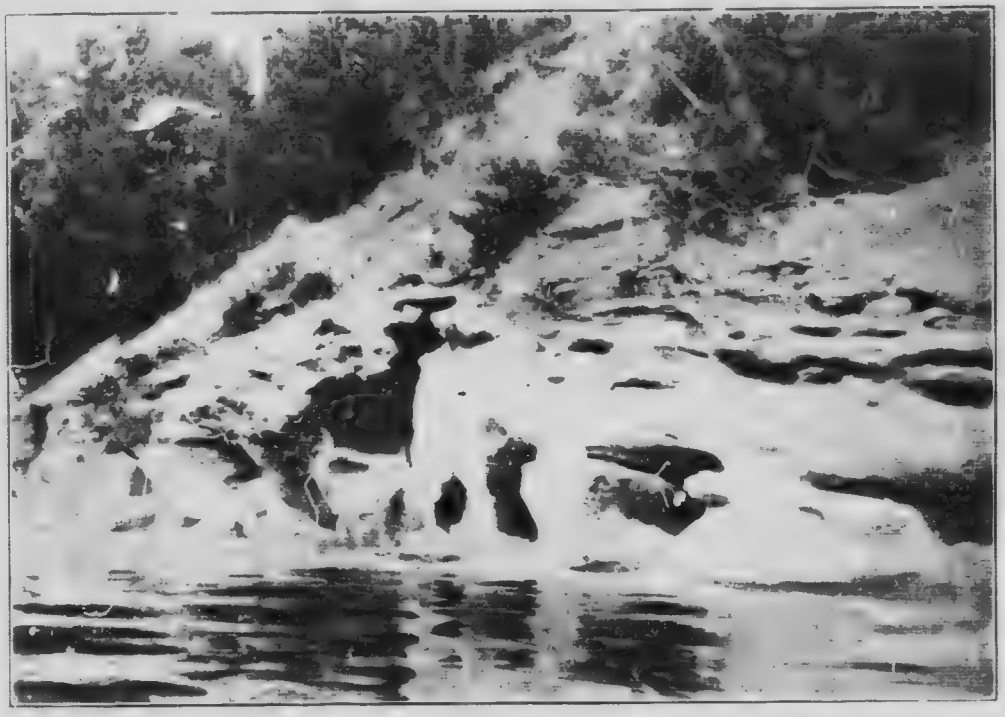
An analysis of this lignite gives the following results: Fixed carbon 26.25, volume combustibles 40.13, H_2O 12.27, ash 21.05 per cent. From the analysis above it is surprising to note how well carbonized is this lignite, considering its recent age, but it is evident that the interglacial period itself in which this lignite was formed was of long duration.

Not only was there deposited a considerable thickness of stratified clays and sand, but there was sufficient time for a great peaty or swampy growth, as well as for trees of large size to mature, be buried and thoroughly carbonized before the next glaciation, for the fragments of lignite found in the drift mentioned above, are evidence that the lignite had formed before the later glaciation and that its carbonization was then quite complete. From the amount of carbonization that the lignite in general has undergone, as shown by the analysis, it can be seen that this lignite is of rather low grade but is sufficiently carbonized to produce a good fuel if briquetted.—Extracts from Bureau of Mines 1911 Report, pages 234-37.

The Gypsum Beds of the James Bay Slope

In connection with his explorations for other valuable minerals, Capt. C. M. McCarthy reports that running from the Moose River across the Abitibi River to the French River are to be found large deposits of Gypsum.

The Bureau of Mines, 1911 Report, page 11, says: "This mineral has hitherto been employed mainly in the manufacture of wall plaster,



MOOSE RIVER GYPSUM DEPOSITS.

calsomining preparations, wood fibre, fireproof blocks for interior walls in buildings, bug poison, as a fertilizer for land, etc., but the development of the Portland Cement Industry has opened up a considerable outlet and has stimulated production."

With the dawn of a new commercial era now assured and the return of millions of men to industrial pursuits of a constructive rather than a destructive nature, the e beds of gypsum should be opened up and made available for their several uses.

Pottery Clay Deposits North of Cochrane

The Ontario Bureau of Mines Report for 1918, pages [illegible] 37, gives the following analyses:

REFRACTORY CLAY FROM MATTAGAMI RIVER.

Hitherto clays have not been found in Ontario suitable for making [illegible] the pottery trade of the [illegible] Province [illegible] the coarsest [illegible] the use of [illegible]

A [illegible] Capt. C. M. McCarthy, of Elk Lake, [illegible] at the foot of the [illegible] a deposit of excellent [illegible] to be capable [illegible] Prof. Geo. A. Guess, of the University of Toronto, [illegible] November, 1917, who reported [illegible] was a good grade of ball clay, the following being a partial analysis: Silica, 52.5; alumina, 32.5; iron, [illegible]; lime, trace.

It has a very high plasticity and [illegible] shrinkage of 6.5 per cent. Burned to cone 5 (1,250° C.) it shows a shrinkage of 14.8 per cent. The color of burning was almost white [illegible] slight cream color. The test pieces on burning cracked after the manner of undiluted ball clay.

A fuller analysis by W. K. McNeill, Provincial Assayer, gave the following composition:

	Per cent		Per cent
Silica	53.10	Soda	0.54
Alumina	31.98	Potash	0.28
Ferric Oxide	1.52	Loss on ignition	12.35
Ferrous Oxide	Nil		
Lime	0.51	Total	100.28
Magnesia	Trace		

Samples were sent to the Canadian Porcelain Company, Limited, Hamilton, who undertook to give them a practical test. After doing so, the company reported as follows on 10th January, 1918:

> We fired samples of the ball clay of Capt. C. M. McCarthy in our kilns and find that the same is practically as plastic as the English ball clay, but has a slightly greater shrinkage. We believe that the clay would be satisfactory for use in porcelain bodies after proper allowance had been made for the variation in the shrinkage.

The clay was also tested at the Mines Department, Ottawa, J. Keele, chief ceramic engineer, reporting it to be a light grey to white clay when dry, and requiring 23 per cent. of water to bring it

to the best working consistency. It had good plasticity and working qualities. Its drying qualities were good, and the shrinkage of dried test pieces was 6 per cent. It burned to a porous but strong body of nearly white color at the lower temperatures or up to 2,190 Fahr. When burned to temperatures higher than this the body became slightly denser and cream-colored. When raised to temperature of cone 33 (3,254 Fahr.) the clay softened. Mr. Keele pronounced it a No. 1 fire clay, and one of the most refractory clays yet found in Canada. Its working, drying, and burning qualities were very satisfactory, as it could be moulded into special shapes for refractory purposes.

In making pottery trials, the clay was thoroughly mixed with an excess of water and washed through a 200-mesh screen. The residue remaining on the screen was 20 per cent. of the original weight and consisted almost wholly of small quartz grains. The washed clay was dried and a mixture was made consisting of 50 per cent. of the clay, 20 per cent. ground feldspar, and 30 per cent. ground quartz. This mixture was made into a slip and cast in the form of small cups. These were burned at a low temperature and four of them sent to the Mayer China Company, of Beaver Falls, Pa., where they were burned in the china biscuit kiln to cone 10, and glazed and re-fired in the china glost kiln at cone 4. The pieces turned out had a beautiful ivory tone, but were not suitable for china or semi-porcelain wares, for which a white colour is strictly required.

Mr. Keele adds that the clay could be used to advantage in making sanitary porcelain, vitrified floor tiles and wall tiles, or probably for electric porcelain. Much of the china clay imported for these purposes is not as good a color as the Mattagami clay, and a little cobalt stain added to this clay would materially improve the color.

A sample of red clay, found on the same property, proved on testing to be very plastic and smooth, being rather more plastic than the white clay. It burned to a red color and hard, dense body at about 2,200° Fahr. It fused at cone 20 (2,786° Fahr.), so that it is not a fire clay, but only semi-refractory. A good fire brick could probably be made from a mixture of one part red clay with two parts of white clay, and a similar mixture could also be used for the manufacture of stoneware pottery.

In June, 1918, Captain McCarthy reported he had pretty thoroughly investigated this deposit of clay by sinking pits, digging trenches, and putting down auger holes. He is convinced the clay occurs over the whole width of his claim of forty chains, and that it is about one hundred feet or over in depth. The red clay lies to the south of the white.

Gold and Silver Production

The gold production of the Province and of the Porcupine area respectively for the last eight years, are shown in the figures appended. These figures, compiled by the Ontario Bureau of Mines, show the Porcupine mines to have supplied much the larger part:

Year	Total Production.	Porcupine.	Porcupine
1910	$68,498	539	51 8
1911	12,637	15,487	36 2
1912	2,414,086	1,730,628	81 8
1913	4,[illegible],548	4,294,115	94 1
1914	5,529,767	5,190,794	93 8
1915	8,501,391	7,536,275	88 6
1916	10,339,259	9,397,556	90 8
1917	8,698,735	8,229,744	94 5
1918 (estimated)	9,800,000	9,000,000	

The dividends from the Northern Ontario Gold Mines to the end of 1917 amounted to $11,480,167.15, and in 1918 (estimated) $1,691,028, making a total of $13,171,195.15.

The records of many of the silver and gold mines of the northern country tell tales, taking the Hollinger Consolidated Gold Mines as an example, the wonderful development of this gold mine is seen in the rapidly increasing yearly output of gold:

	Tons Ore Milled.	Values Recovered.	Dividends Paid.
1911	1,000	$46,082 52	
1912	45,195	933,682 00	$270,000 00
1913	140,131	2,488,022 58	1,170,000 00
1914	211,846	2,719,354 47	1,170,000 00
1915	441,236	4,205,901 69	1,720,000 00
1916	601,854	5,073,401 05	3,126,000 00
1917	508,139	4,261,938 72	738,000 00
1918	578,755	5,752,370 87	1,230,000 00
Totals	2,528,876	$25,480,753 00	$9,424,000 00

The total silver production of the Cobalt mines during the past eighteen years (1901-1918 inclusive), as shown in the following table, is as follows for the different classes of the ores from a metallurgical standpoint:

	Ounces.	Value.		Ounces.	Value.
1904	296,875	$111,887	1912	30,243,859	17,408,935
1905	2,451,356	1,360,503	1913	29,681,975	16,553,981
1906	5,401,766	3,067,554	1914	25,062,841	12,765,461
1907	10,923,311	6,155,394	1915	24,746,574	12,135,816
1908	19,417,875	9,133,378	1916	19,917,090	12,643,475
1909	25,897,825	12,461,576	1917	19,401,893	16,131,013
1910	30,645,181	15,478,047	1918	17,750,000	(est.) 17,000,000
1911	31,507,791	17,955,847		292,474,172	$168,960,561

The Commercial Possibilities of Peat in Northern Ontario

"Peat as a Fuel" (says Mr. A. A. Cole, Mining Engineer, T. & N.O. Railway, in his 1917 Report on the Mining Industry, pages 15-18), "has been used for many years in Europe, but in Canada its production has never been a serious competitor with coal. With the large increase in the cost of coal to the consumer, peat as a fuel now becomes a possibility."

KESAGAMI LAKE, SHOWING PEAT CLIFFS WITH PILLARS.

"Peat bogs are known to occur at many points along the Temiskaming and Northern Ontario Railway from mileage 38 to Cochrane. Some of them have an area of several thousand acres. Samples of some of these peat bogs were sent to Ottawa, which [illegible] were found to have a very satisfactory calorific value."

From the reports of the engineers who have investigated the coastal plain areas of the James Bay slope, it appears that vast and practically unlimited supplies of peat bogs are available as soon as transportation facilities have been provided.

The Agricultural Development of Northern Ontario

[illegible] Ontario [illegible] No. 15[illegible] Ontario Department of [illegible] [illegible] 28,0[illegible] [illegible] the year 1918 [illegible]

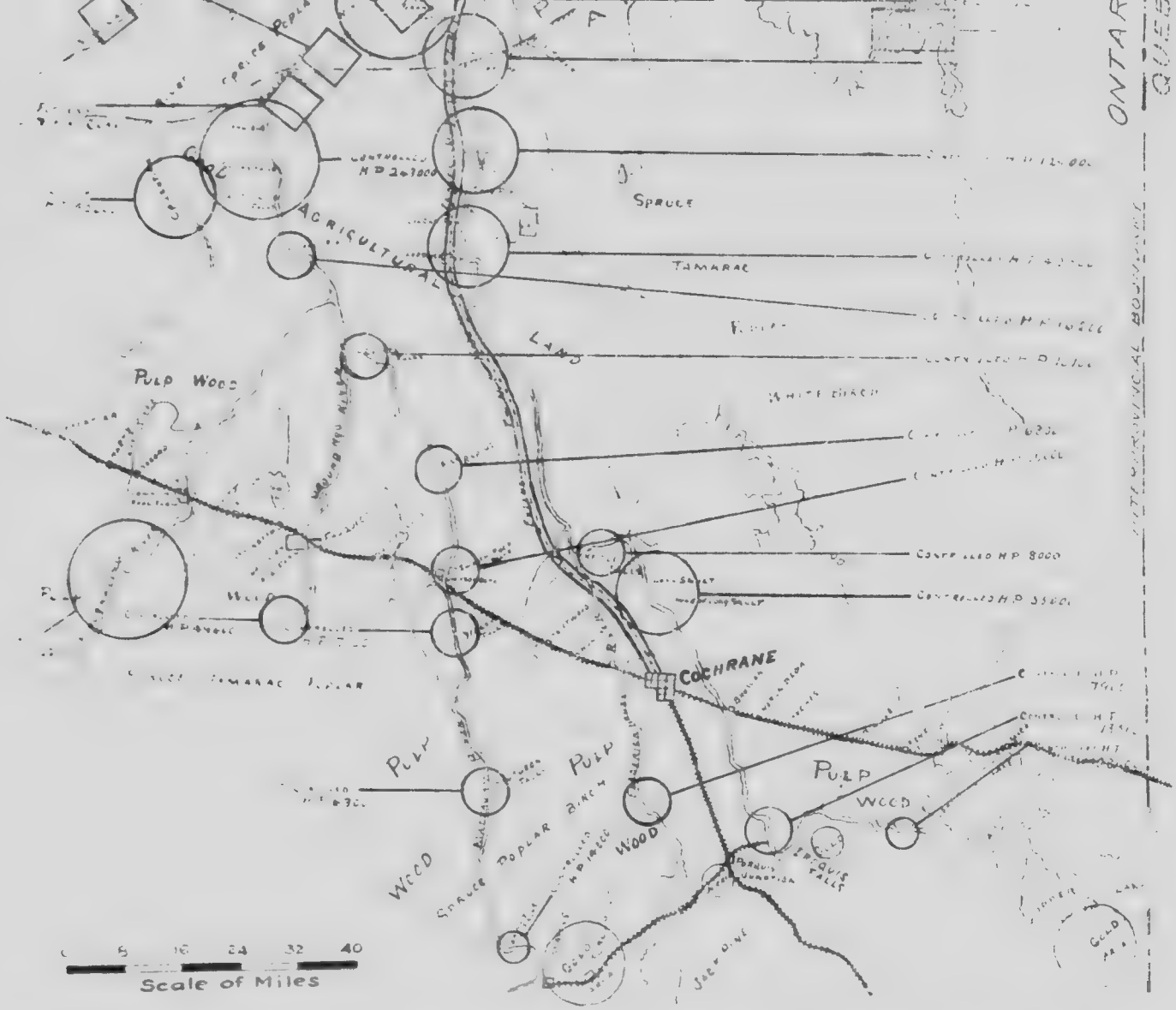
[illegible] Winter wheat, 30 [illegible] spring wheat, [illegible] oats, 50 bushels; barley, 40 to 60 bushels; peas, [illegible] 500 to 700 bushels; potatoes, 250 to 350, in some cases as high as 400 bushels; mangels, 475 to 600 bushels; red clover, [illegible].

Commenting on the above, the Cochrane *Northland Post* says:

"The vast stretches of unparalleled soil in the Clay Belt might well attract more attention from the Repatriation Committee. Those [illegible] returned soldiers whose inclinations run towards the free and

BUILDING A FORTY-LOAD HAY STACK AT ENGLEHART.

independent life, endowed with vision to take up and enjoy the pioneer life, will find in the Clay Belt the inimitability of home-building, untrammeled by the irritating limitations and narrowness of mind of too close urban proximity, and yet within only five hundred miles from the very centre of urban life as represented in Canada through the cities of Toronto, Ottawa, Montreal and Quebec. With a little attention shown to community settlements, establishment of good roads to connect the various settlements, establishment of good rural schools, rural credits and social intercourse on comprehensive and progressive lines, there is no part in the whole Dominion that can vie with Ontario's great heritage to the north in building up a sturdy race.



Some of the Resources Awaiting the Extension of the Temiskaming and Northern Ontario Railway from Cochrane to James Bay.

JAMES
BAY
MOOSE FACTORY (H.B.Co)
FRENCH RIVER
SUDBURY
WOOD
JACK PINE
SPRUCE
PULP
ONTARIO
QUEBEC

The Fisheries of the North

Properly speaking, the fisheries of Hudson and James Bays have only been but slightly investigated. Revillion Freres and Hudson's Bay Company have for centuries had a monopoly on this industry. The Hudson's Bay Company exports every year a considerable number of barrels of fine salmon and other species of fish. From investigations made on several occasions during the past decade it appears that many of the best varieties of fresh and salt water fish are to be found in our great inland ocean and in the rivers and lakes adjacent thereto. In addition to the cod, the whale, and the fur-bearing seal, there are upwards of one hundred known species of fish to be found in these northern waters.

During the year 1918 it is estimated that the fisheries of Canada produced $60,000,000. The value of the Ontario fisheries for the year 1917 was only $2,866,419. Canada's territorial fishing grounds extend from the Bay of Fundy to the Straits of Belle Isle on the Atlantic coast and from the Fraser River to Prince Rupert on the Pacific, besides interior waters. With three thousand miles of coast line on Hudson Bay the Province of Ontario has a heritage in fisheries that should almost be sufficient in itself to warrant the immediate extension of the Government Railway to the shores of James Bay.

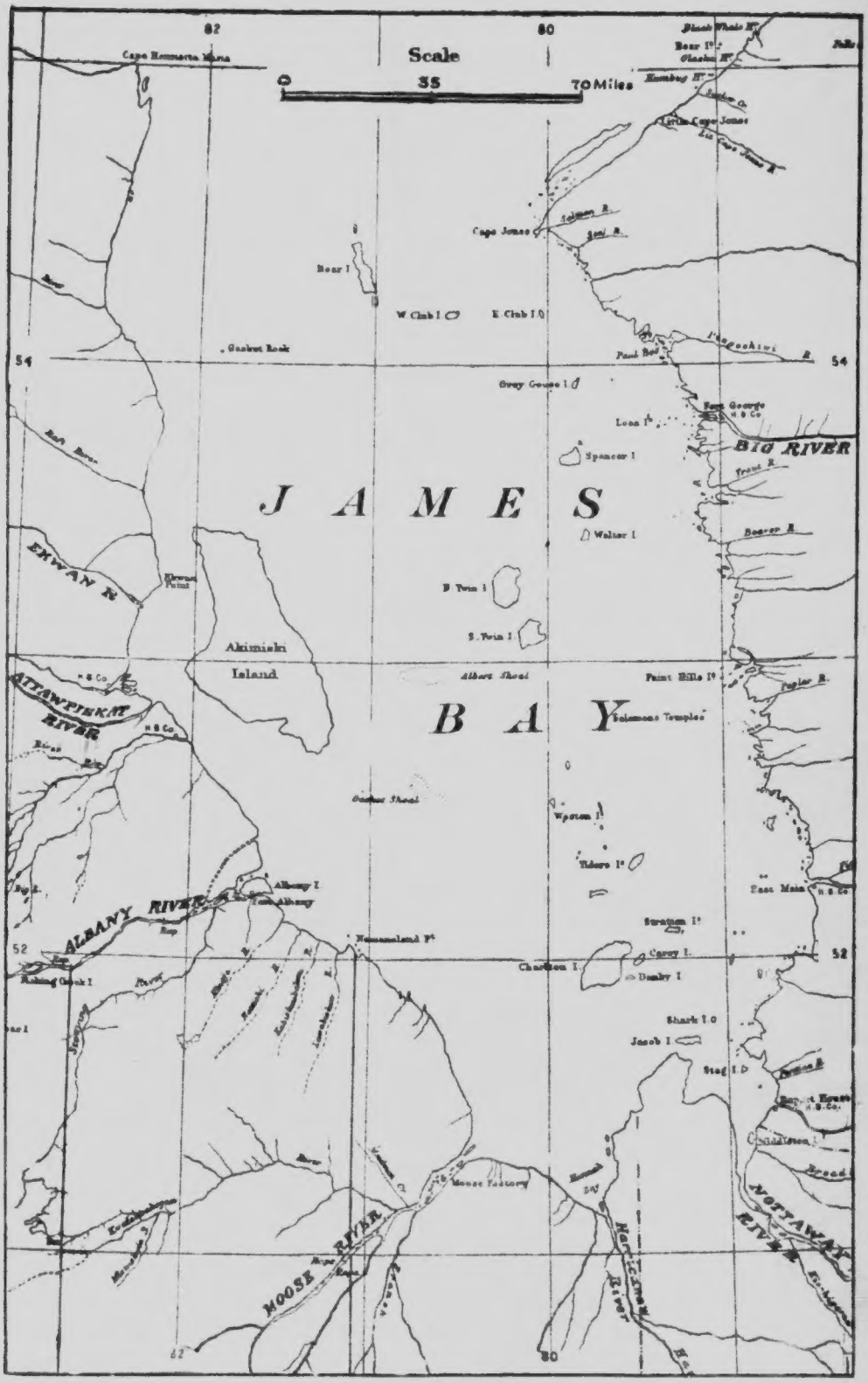
The Untold Riches of the North

In addition to the above there are many other sources of wealth in the James Bay Coastal Plain and the territory adjacent to Hudson Bay. Percy E. Hopkins, Assistant Geologist of the Mines Branch of the Ontario Government, in writing of the formation south of James and Hudson Bays, states that there is a large area of Cambrian, Ordovician, Silurian and Devonian rocks similar to those occurring in South-western Ontario, Ohio and Pennsylvania. Oil and natural gas are obtained in the latter places. "Specialist tell me," says Mr. Hopkins, "that there is a possibility of finding the same minerals to the north of Cochrane, especially in the Devonian."

Hot sulphur springs have been located on the little French River, a tributary of the Moose.

Limestone in large quantities and of good grade, similar to the Guelph rock, has been located on the Mattagami and along the banks of other rivers.

At various times and in a wide range of places other more or less valuable deposits have been noted. Some of these comprise lead, anthraxilite, chalcopyrite, mica, graphite, molybdenite, argentiferous galena, etc., but space will not permit an enlargement on the locations of the different showings or the amount of exploration work that has been done on the several bodies.



JAMES BAY, LYING TO THE SOUTH OF HUDSON BAY, IS APPROXIMATELY 200 MILES LONG, AND HAS A MAXIMUM WIDTH OF ABOUT 145 MILES.